



OPTIMATION, INC. • 7243 atoll ave. • north hollywood • calif. • tr. 7-0222

November 9, 1965

Mr. T. H. Nelson  
Systems Consultant  
P. O. Box 1546  
Poughkeepsie, New York 12603

Dear Mr. Nelson:

In response to your inquiry here is information describing Optimation products. Optimation manufactures AC signal and power sources, both single and polyphase. These instruments are utilized for AC calibration in standards laboratories, gyro testing, and other applications requiring the ultimate in precision AC voltages and/or currents.

If you would like additional information please contact us or our local representative who is:

SBM Associates, Inc.  
139 East Main Street  
Elmsford, New York  
~~Telephone: OL 4-8440~~

May we be of service soon?

Very truly yours,

OPTIMATION, INC.

Lee C. Pulsipher  
Vice President

LCP:eh

Enc. PA-50 Dta Sheet



OPTIMATION, INC.

## 50 VA POWER AMPLIFIER



PA50's with dual rack adapter



PA50T

### FEATURES

- \* **WIDE FREQUENCY RANGE**  
DC to 100,000 Hz is provided by the temperature compensated operational amplifier featuring all silicon solid state circuitry.
- \* **LOW DISTORTION**  
.05% at any power output to 50VA from 20Hz to 5kHz is assured by 60db feedback around a stable amplifier.
- \* **REGULATION, LINE - LOAD**  
.01% is facilitated by internal impedance in milliohm range. Load regulation adjustment on units with transformer.
- \* **COMPACT SIZE**  
3½H x 8W x 13D permits bench use or convenient 19" rack mounting, singly or in pairs with optional rack adapters.
- \* **OUTPUT VOLTAGE**  
to 150V open circuit, available when the optional output transformer is included — frequency range 45 Hz to 100 kHz. Direct coupled output voltage to 15V.

### SPECIFICATIONS

#### INPUT, Single ended

IMPEDANCE ..... 11,000 to 25,000 ohms  
GAIN, Voltage, adjustable ..... 0 to 10

#### OUTPUT, Ground or Floating (PA 50T only)

POWER, RMS, Direct coupled, DC to 20,000 Hertz, @ nominal line voltage (—20% @ DC) .. 50 VA ±10%  
Transformer coupled, 40 to 20,000 Hertz ..... 45 VA ±10%  
VOLTAGE RANGE, Direct coupled, no load ..... 0 to 15 VRMS  
Transformer coupled, no load, 3 taps ..... 0 to 37V, 0 to 75V, or 0 to 150 VRMS  
MATCHED LOAD IMPEDANCE, Direct coupled ..... 2 ohms  
Transformer coupled ..... 13 ohms, 50 ohms, or 200 ohms  
GAIN INSTABILITY ..... 0.01%  
REGULATION, LINE, 10% variation ..... within 0.01%  
LOAD, No load to full load (adjustable on xfmr coupled units) ..... within 0.01%  
DISTORTION, Direct coupled, DC to 5000 Hertz, 50VA ±10% (—20% @ DC) ..... 0.05%  
Transformer coupled, 100 to 5000 Hertz 45VA ±10% ..... 0.1%  
HUM AND NOISE, % rated output ..... 0.01%

POWER REQUIREMENTS, 105-125 VAC or 210-250 VAC, 50 to 400 Hertz ..... 125 Watts

SIZE, Bench-mounted ..... 3½H x 8W x 13D

PRICE, Direct Coupled, MODEL PA-50 ..... \$650.

Transformer coupled, MODEL PA-50T ..... \$725.

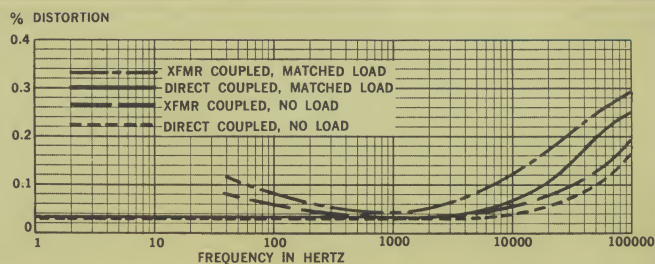
Rack mount adapters — 3½H x 19W ..... Single P/N 91050 \$25., Dual P/N 91051 \$25.



# PERFORMANCE DATA

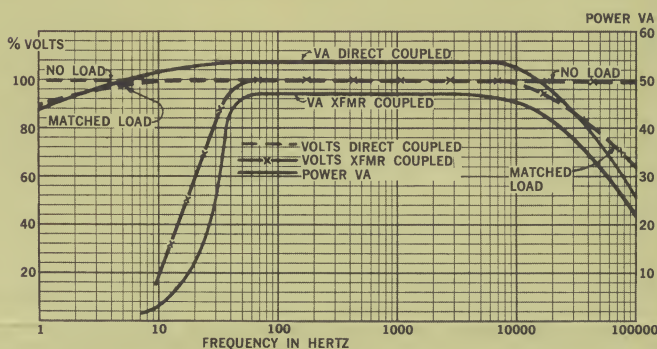
**DISTORTION** at full power and no load for both direct and output transformer coupled amplifier versions is maintained to a very low value over the entire frequency range.

To achieve these results it is necessary to use a signal source with less than 0.02% distortion. Optimization RCD series oscillators are ideal as a source for this amplifier.



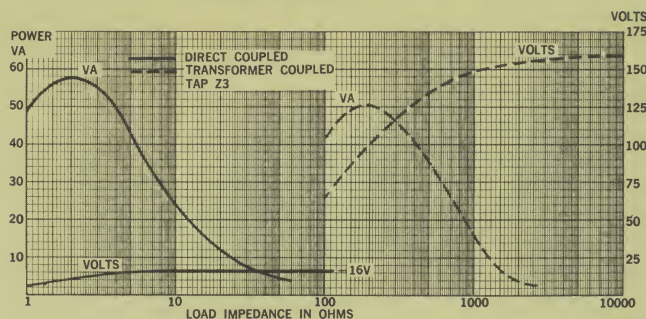
**POWER AND VOLTAGE OUTPUT** over the frequency range from DC to 100kHz is illustrated for both direct and transformer coupled amplifiers.

Matched load voltage is shown for the highest voltage tap, Z3. To find the corresponding voltage for taps Z1 and Z2, multiply values indicated for Z3 by  $\frac{1}{4}$  or  $\frac{1}{2}$  respectively. See table below.



**MAXIMUM POWER AND VOLTAGE** as a function of load impedance at 1kHz, are shown for direct and transformer coupled amplifier. Use the following table to find multiplication factor for voltage or load impedance for transformer taps Z1 and Z2.

Tap	Voltage Factor	Load Z Factor	Step-up Ratio from direct coupled
Z1	$\frac{1}{4}x$	$\frac{1}{16}x$	2.5
Z2	$\frac{1}{2}x$	$\frac{1}{4}x$	5
Z3	1	1	10



## APPLICATION NOTES

- AMPLIFY LOW FREQUENCY or DC FUNCTIONS** — Frequency response to DC on PA 50 provides power amplification for low frequency functions such as triangular, ramp, sine, or other waveforms. The PA 50 may be used as a precision DC power amplifier.
- METER CALIBRATION** — When driven by a stable amplitude, low distortion oscillator (Optimization RCD series) the transformer coupled PA-50T provides voltages to 150V, stable within 0.01% for precision voltmeter calibration.
- COMPONENT AND SYSTEM TESTING** — provides clean, stable output power to test transformers, filters, amplifiers, transducers, etc. on both the pro-

duction line and test stand. PA-50, 50T has excellent square wave response.

- DRIVE REACTIVE LOADS** — inductive loads such as motors or capacitive loads such as piezo-electric vibration shakers can be driven by the PA-50 or PA-50T. No derating from 50VA with 0.1 leading or lagging power factor loads.

- GYRO or SERVO POWER SOURCE** — PA-50 or 50T amplifiers may be used singly or in multiples together with an Optimization RCD single or poly-phase oscillator to provide precision AC power — stable amplitude and regulation within 0.01%.

\* Performance data shows typical amplifier performance. PA 50, 50T may be ordered to specifications listed on front of data sheet.

### WARRANTY

Optimization instruments are manufactured and tested under an exacting quality control program. Conservatively rated, premium components are used in our instruments to insure long reliable operation within specifications. We warrant each instrument to be free from defects in material and workmanship. We will adjust, service and/or replace any defective parts (tubes excepted), in instruments returned to us, for 1 year after delivery to the original buyer.

### REPRESENTED BY:

Prices and specifications subject to change without notice.



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